

Solve the following equations on the interval $[0, 2\pi]$.

1. $\cos \frac{x}{4} = 0$

2. $\cos 3x + 1 = \sin 3x$

3. $2 \sin^2 2x = 1$

4. $\cos 2x (2 \cos x + 1) = 0$

5. Find all trig functions using identities, given $\tan \theta = -7$ and $\sin \theta > 0$.

$$\sin \theta = \underline{\hspace{2cm}}$$

$$\cos \theta = \underline{\hspace{2cm}}$$

$$\tan \theta = \underline{\hspace{2cm}}$$

$$\csc \theta = \underline{\hspace{2cm}}$$

$$\sec \theta = \underline{\hspace{2cm}}$$

$$\cot \theta = \underline{\hspace{2cm}}$$

Find all solutions for the following equations.

6. $\sin \frac{x}{2} = 0$

7. $\sec 4x = 2$

8. $\tan \frac{x}{3} = 1$

9. $\sec^2 3x + \tan 3x = 1$